

## **ABSTRACT**

An integrated circuit-based compound eye includes a plurality of photodetector elements disposed on a semiconductor substrate. A compound light directing member includes a plurality of light directing elements wherein at least some of the light directing elements are to individually direct light energy from one or more sources onto one or more of the photodetector elements. The compound light directing member is the primary mechanism to direct light energy onto the one or more of the photodetector elements. Outputs of the photodetector elements are electrically coupled in such a way that an image associated with the source may be synthesized at output circuitry.

For another aspect, a compound exposure determining member includes a plurality of light scanning elements, each of the light scanning elements including an integrated photodetector. Each of the light scanning elements is controllable to vary an angle of the photodetector with respect to a substrate to determine from which point sources and angles light energy is received at the photodetector.